9.0 Development of Improved Nurse Staffing Data Collection and Audit Tool[1]

9.1 Background and Purpose

Enforcement of any federal or state proposed minimum staffing requirement for nursing facilities will necessitate an accurate nurse staffing measure that can be used to monitor compliance with the regulation. Even if a minimum staffing requirement is not implemented, accurate staffing data are necessary to provide more information to consumers regarding nursing facility services. For example, consumers could benefit from nurse staffing information were this information to be available on CMS' "Nursing Home Compare" website. The purpose of this task is to develop a mechanism to capture accurate nurse staffing data. The mechanism under consideration is a nurse staffing reporting form and external audit protocol.

The only electronic sources for nursing home nurse staffing data currently available are Medicaid Cost Reports and the Center for Medicare and Medicaid Services' (CMS) Online Survey and Certification Reporting System (OSCAR). Both are limited in their ability to provide an accurate depiction of staffing levels over multiple, distinct time periods. OSCAR data are collected for all Medicare-certified nursing facilities, but represent only one two-week period immediately prior to the annual certification survey. OSCAR staffing measures are not audited, and there is currently no mechanism for assuring their accuracy. The Medicaid Cost Report is a financial report of all facility costs, including those related to staffing, totaled for one year. The Cost Report data are not available for all states and only include facilities that are Medicaid certified. During the first phase of the *Study on Appropriateness of Minimum Nurse Staffing Ratios for Nursing Homes,* payroll data were collected from nursing facilities in Ohio to assess the validity and reliability of staffing measures from OSCAR and Medicaid Cost Report data. The payroll data collection activity was designed to provide a "gold standard" measure for testing the accuracy of these staffing data.

Phase 1 analyses demonstrated that the OSCAR system is not accurate. Although the OSCAR nurse staffing measures appear reasonably accurate when aggregated across

[1] Written by Donna Hurd of Abt Associates for the Centers for Medicare and Medicaid Services (Contract # 500-95-0062 - T.O. #3; Alan White, Abt Associates Project Director; and Marvin Feuerberg, CMS Project Officer). This task was a joint effort between Abt Associates, CMS, Survey Solutions Inc. and Cowles Research Group. Beth Klitch and Kay Webb of Survey Solutions, Inc., developed and revised the data collection tool based on comments from Marvin Feuerberg and Susan Joslin, Project Officers, Donna Hurd and Alan White of Abt Associates, and Mick Cowles of Cowles Research Group. Testing of the tool was coordinated by Survey Solutions Inc. Valuable comments on the tool's design and testing were provided by Terry Moore of Abt Associates. Editorial assistance was provided by Marvin Feuerberg, Project Officer and Terry Moore and Deborah Deitz of Abt Associates.

facilities (e.g., for state averages), at the level of the individual facility their accuracy is unacceptable. Medicaid Cost reports, although determined in the Phase I analysis to be more accurate than OSCAR, do not contain consistent staffing definitions or report consistent staffing measures across states. In addition, there is a considerable time lag from the reporting period to data availability.

The data collection effort conducted for the Phase I report generally revealed that payroll records and contract staffing agency invoices were an accessible and likely accurate source for nurse staffing data. All of the variables identified in the study were available and easily identified at each of the facilities in the Ohio sample. Data collected included paid nursing hours for all permanent nursing employees as well as hours paid to contract nursing staff. Average daily census was also collected for the time periods corresponding to the payroll data collection. Employees and contract staff were identified by department and staff type (director of nursing, administrative nurses, RNs, LPN/LVNs and Certified Nursing Assistants). The records were found to be available for the previous six to twelve months and generally took no more than 30-40 minutes to extract per facility.

This chapter describes the iterative process employed in the development of a nurse staffing data collection tool that would use as its source documents payroll records and contract agency invoices. Section 9.2 describes the purpose of this task. Section 9.3 describes the processes involved during the development phase. It begins with a description of all the staffing variables of interest and the processes involved in evaluating the availability of this information. It includes the information obtained from interviews with facility staff, payroll processing companies and contract agency personnel during the development phase. This section also includes the rationale for decisions that were made regarding the feasibility of collecting information on certain of the staffing variables. Section 9.4 describes the field-testing that took place using the draft tool and Section 9.5 concludes with recommendations for further revisions and testing.

9.2 Development and Testing of the Nurse Staffing Data Collection Tool

9.2.1 Goal

Staffing information gathered during Phase I involved only one state (Ohio) and collected a limited number of payroll variables. Total staffing hours for RNs, LPN/LVNs and Certified Nursing Assistants were collected for two two-week periods for both facility employees and any contract agency staff engaged during those periods. Results of this study showed that payroll records in Ohio were available and relatively straightforward for the data collector to understand and collect. Thus, the decision was made to expand this investigation to examine payroll records and contract agency staffing invoices in multiple states. The goal in the expanded study was to test the feasibility of collecting an expanded number of staffing variables from payroll records and contract agency staffing invoices through the use of a

specially-developed data collection instrument. This tool would capture staffing hours differentiated by the following characteristics:

- nurse staff type (RN, LPN/LVN, Certified Nursing Assistant (CNA));
- shift worked (eight-hour day, evening or night shift or twelve-hour day or night shift);
- unit worked;
- care provided for Medicare or non-Medicare beneficiaries;
- day of the week worked (Monday through Friday or weekend); and
- type of care (direct care or administrative).

A further goal for this project was to examine and describe facility payroll processes including the types of records available and procedures involved in maintaining and modifying those records. The project team was interested in obtaining the same types of information for the agency invoice processes, as the invoices represent the documentation of the hours and types of contract staff used by facilities. An additional goal for testing this tool was to develop and describe a procedure to audit the staffing data collection instrument.

Payroll period was defined as a two-week period, regardless of the facility's current payroll period. The selection of the above-mentioned variables was made in response to comments from stakeholders and the professional judgement of members of the research team. The following is a brief discussion summarizing the decision- making process for including each of the variables in the study.

Nurse Staffing Hours by Licensure Type

It was important to differentiate between hours worked and hours paid. The number of hours worked captures the time spent working at the nursing facility. This is distinct from the hours that are paid to an employee as components in a benefits package, often referred to as Paid Time Off (PTO). There is great variability between facilities in terms of hours offered as PTO, but as illustration, these hours generally include sick hours, vacation hours, bereavement hours, and/or personal time. Making this differentiation between hours worked and hours paid was thought to present a more accurate picture of hours of care provided for nursing facility residents.[2]

OSCAR data on staffing hours is defined as hours worked. Medicaid Cost reports vary by state with at least some states making a distinction between hours worked from hours paid. Nurse staff type (RN, LPN/LVN, CNA) was collected during the Ohio payroll data collection and was known to be readily available.

[2] The number of hours paid presents a more accurate representation of the staffing costs incurred by a facility and will be examined in other aspects of this report.

Shift Worked

The shift worked, e.g., 7:00 AM to 3:00 PM, was selected for inclusion as there has been much public and regulatory interest in understanding the level of nursing facility staffing over the twenty-four hour day. Staffing during the day time (typically the 7:00 AM to 3:00 PM shift) is generally high, as nurse administrators, supervisors and nurse managers are available to supplement the number of direct care workers should the need arise. Staffing on the evening and night shifts (typically 3:00 PM to 11:00 PM and 11:00 PM to 7:00 AM) is generally much lighter as administrative staff are usually not in the facility after 4:00 or 5:00 PM. It was recognized by the research team that staffing for these evening and night hours is an on-going concern for residents, consumers and regulators and should therefore be captured by the data collection tool.

Unit Worked

The interest in unit worked stemmed, in part, from a concern on the part of the research team for the staffing levels provided on specialty units. These are units identified as providing care for targeted populations of residents, particularly Alzheimer or dementia residents and rehabilitation or sub-acute patients. Because of the more specialized nature of the care required for these resident groups and/or the increased acuity of their medical conditions, enhanced staffing on these units is believed to be necessary. If a minimum staffing regulation was to be implemented and if this regulation identified minimum staffing levels by acuity or casemix, some mechanism for identifying staffing in particular areas of the facility would be necessary. In addition, staffing hours reported at the unit level would be most applicable to consumers' interests.

Care provided for Medicare versus non-Medicare beneficiaries

Those residents recently hospitalized and receiving Medicare benefits during their nursing home stay are generally believed to be more acutely ill and therefore in need of increased nursing attention. Their need for daily skilled nursing or rehab care should be evident in staffing levels that reflect a higher level of oversight. In the event that minimum staffing levels are mandated, a mechanism to verify that these residents are receiving an appropriate level of care and supervision would be necessary.

Day of the week worked (Monday through Friday or Weekend)

Similar to the argument for examining staffing by shift, the staffing reported for weekdays versus weekends is of interest to consumers and regulators, as resident needs must be met each day of the week. Directors of nursing, nurse administrators, supervisors and managers are typically available Monday through Friday to supplement any staff shortages. Supervisory staff on weekends make up some portion of the total nurse administrative staff and varies greatly by facility. Generally, nursing home staff workers (nursing assistants and staff nurses) are required to work some proportion of weekend hours, the usual requirement being that they work every other weekend. In terms of the facility staff as a whole, it follows then that half the staff will be on duty for the weekend and half of the staff will have the weekend off. To maintain adequate numbers of staff on weekends, facilities must recruit employees willing to work just weekends or per diem staff. Per diem staff, although

classified as employees of the facility, work only on an as-needed basis. These individuals generally are compensated at a higher rate of pay, but do not receive benefits. Facilities may or may not require a certain minimum of hours per designated time period in order to maintain their per diem status, thus some individuals may work quite often while others work very infrequently.

Type of care (Direct care or Administrative)

The research team believed that a distinction was necessary between hours of care provided to residents and hours allotted for administrative duties. Hours worked by directors of nursing, assistant directors of nursing and MDS Coordinators were thought to belong in a separate category from those of nursing assistants, staff nurses, managers and supervisors who were directly involved in either providing or supervising care. The administrative nurses are typically paid a salary and do not record hours worked. Researchers were interested in the number of positions or full-time equivalents designated for nursing administration as well as an estimate of the hours actually worked. The number of actual hours worked was recognized as potentially not verifiable in any source document but were of interest in terms of the level of effort these individuals expended.

Auditing the staffing information

If a minimum staffing regulation were implemented it would most likely include a reporting requirement that facilities submit staffing hours on some regular basis. Some method of verifying the accuracy of staffing information submitted would be necessary. On-site visits to examine payroll records and contract agency invoices would be one possible method, although not the only one and probably not the most efficient. This type of audit could be accomplished by state surveyors during the annual licensure and certification inspection or by an independent contractor engaged by the state agency for this task. Anther possible method for verification of submitted staffing data would be electronic data submission with targeting measures to identify facilities with aberrant staffing numbers. Only those facilities with staffing numbers outside an acceptable range for their bed size would be visited to obtain verification and additional information. For this project, an on-site verification process was developed and partially tested so that both the accuracy of the staffing information could be checked as well as the feasibility of obtaining the information from payroll records and contract agency invoices.

9.2.2 Process

The nurse staffing data collection tool was developed through a subcontract between Abt Associates, Survey Solutions (SSI) and Cowles Research Group (CRG). SSI, a long term care management consulting and accreditation company, developed and revised the data collection tool based on input from the research team. CRG, specializing in health services research and long term care databases, was a key reviewer of the various versions of the tool as it was developed. The project team, composed of Abt, CMS, SSI and CRG staff reviewed the tool at regular intervals over a 12- month period, providing both written and oral comments as well as participating in the field testing of various versions of the early tool. In

total, there were some 15 versions of the instrument developed through a survey of team comments and pre-testing in eight nursing facilities.

In August 2000, the project team began by identifying the staffing variables of interest, a desirable format to facilitate the accurate collection of those variables, and the need to describe a process for auditing the tool. The project team identified problems with the collection and input of staffing data on CMS' OSCAR (or Form 671) and sought to develop a tool that would minimize both facility completion errors and state agency data entry errors. During the fall of 2000, SSI presented a draft version to five nursing facilities in Ohio. Some of the facilities were asked to complete the instrument with minimal assistance from SSI staff while others were interviewed to obtain the same information. Interviews with owners, administrators, directors of nursing and business office managers were conducted to understand the sources of information available to complete the instrument and to evaluate the ease with which the required information could be obtained from existing data systems. Based on the initial field interviews, the tool was put through further revisions. In March 2001, the tool was tested by an Abt staff member at two Boston-area nursing facilities and in May 2001 at another Ohio facility by SSI staff. Based on these additional tests, along with feedback from the facilities' staff, the tool was further revised in content and format.

During the development and pre-testing phase, several major staffing agencies known to provide temporary nurse staffing to nursing homes were interviewed to determine the general format and content of information included on agency invoices. The frequency and availability of invoices was important to guide the development of audit protocols. Audits of nursing facility staffing hours using source documents of payroll records and agency invoices could not take place until all source documents were available. Facilities are generally invoiced for temporary staffing hours on a monthly basis, thus the timing of these audits would be dependent on receipt of the agency invoices.

Several major payroll processing companies were also contacted as part of the tool development process. Interviews were conducted with four major companies in an effort to understand the processes involved for facilities when initially requesting or altering summary reports that included the staffing information of interest.

The remainder of this section will describe the process of instrument development, revision and pre-testing that resulted in a tool accepted as ready for field-testing. The tool was designed to (1) inform the research team regarding facility payroll processes and systems, (2) determine the feasibility of collecting select staffing variables from payroll records and temporary agency invoices and (3) develop and test a mechanism to audit the data. The tool was organized into the following sections:

- Facility identification and information;
- Census and acuity information;
- Facility payroll systems;

- Facility staff turnover and stability;
- Staff hourly wage rates;
- Facility nurse staffing hours;
- Contract nursing services invoices; and
- Contract nursing services nurse staffing hours.

Facility Identification and Information

This section contains facility and data collector identifiers as well as certification types(s) and numbers of beds. As much as possible, where text and numeric information was requested, the form was designed such that each individual number or letter is written in an individual box to minimize data entry errors due to illegible data. The following identifying information was collected:

- Facility name;
- Federal provider number that identifies the nursing facility beds. In cases where facilities contain multiple levels of care, only the provider number that refers to the nursing facility beds is required;
- County;
- Street address;
- Telephone and fax numbers;
- Facility email address, if available; and
- Certification type and number of beds -
  - Skilled nursing facility (SNF) Medicare-only beds;
  - SNF/Nursing facility (SNF/NF) Dually-certified beds;
  - NF Medicaid only beds;
  - Total number of beds in facility.

Census and acuity information

To calculate ratios of nurse staff to residents, census information on the number of current residents is needed for the payroll period. Several of the stakeholder groups for this project strongly recommended that any information collected on staffing and/or recommendations made take into account the acuity of the resident population. In response to this concern, the staffing tool includes information on resident Resource Utilization Groups Version III (RUG-III) as one measure of resident acuity. The research team anticipated, however, that not all facilities would be able to supply this information for all residents. Facilities caring for residents receiving Medicare benefits should be able to report a RUG for each Medicare resident, but for non-Medicare residents a RUG may not be assigned. The decision was made to attempt to collect RUGs for all residents so as to determine the degree to which this information is available for all residents.

Pre-testing at facilities during the development phase showed that only in Ohio, which utilizes a RUG-based Medicaid reimbursement system, could RUGs be identified for all residents. In Massachusetts where Medicaid services are reimbursed to facilities based on

the Management Minutes System (MMS), resident MMS groups could be determined from facility billing software, and Medicare resident RUGs could be obtained using their MDS software. Staff were unable, however, to generate a single report that would list each facility resident with their corresponding RUG. The project team decided that it would further test this issue in multiple states before making a determination as to its utility.

Facility Payroll Systems

This section contains informational questions regarding the types of payroll processing systems that nursing facilities employ. The tool asks the facility to describe how employee hours are recorded, how payroll is generated and what types of staffing information are available in payroll reports. Assessment of payroll processes currently in use is a first step in determining the impact on facilities of any requirement to supply additional or different staffing information from this source. The small sample of facilities visited during the development phase demonstrated a variety of payroll systems and processes.

Pre-testing of the form at eight facilities during the development phase revealed that facilities utilized a variety of systems and processes to record employee hours and generate employee paychecks. Some type of time clock mechanism for recording employee work start and end times was utilized at all facilities. In some facilities these systems for recording hours were fully integrated to the system that generated the payroll, i.e., the hours recorded by the time clock system were electronically linked to the system that produced the paychecks. In other facilities, the system of transferring employee hours from the time clock system to the payroll system was a completely separate and manual process. No sampled facilities were able to fully integrate employee hours worked with payroll and clinical or RUGs information, although such fully integrated systems are known to exist. The frequency with which the payroll was generated also varied considerably. Facilities varied from weekly to biweekly on designated days of the week and/or dates in the month, e.g., one facility paid it's employees on the 5th and 20th day of each month.

Facility staff were interviewed regarding the types of information that was contained in their payroll journals or reports. All eight facilities indicated they were able to report total hours by staff nurse type (RN, LPN, CNA). Each facility was also able to distinguish nurse administrator positions that were salaried from those positions that were paid by the hour. One facility, however, could not distinguish RN administrative positions from LPN administrative positions. Salaried nurses did not punch time cards, but generally reported their hours on a time sheet using an honor system. The remainder of the staffing information (shift, unit, day of the week, and Medicare/non-Medicare) varied by facility. In some cases facilities reported that they were able to determine hours for certain variables, when in fact, upon examination of the payroll journal, this information was not available. In all cases, except for Medicare vs. non-Medicare hours, facility staff indicated that all of the other staffing variables were available but would require an examination of other facility records. These other facility records included work schedules and/or daily assignment sheets that were completed and kept by the facility for a designated period of time. However, these records were recognized to be only partially accurate as they were not always revised or

updated to reflect the final distribution of staff per shift and day. Upon examination of these two types of records, it was found that they were at least partially hand-written, contained numerous revisions and did not always indicate the nursing staff's licensure. Only one facility reported being able to distinguish between hours worked on a Medicare skilled nursing unit from its payroll records; the other seven facilities indicated that they either no longer maintained separate skilled-only units or that the information would have to be obtained from supplementary documents.

Interviews with Payroll Processing Companies

Payroll processing companies were contacted during the development phase to facilitate a better understanding of the variability observed in facility payroll reports. Although each of the eight facilities visited during the development phase was noted to use a major payroll processing company, there was considerable variability in the number and types of staffing information documented in payroll summary reports. For example, both of the Massachusetts facilities visited used the same major payroll processing company for the payroll period examined. One payroll summary report listed nurse staffing by licensure, staff type (administrative vs. direct care staff), unit worked and employment status (regular staff or per diem staff). The other facility listed nursing hours by licensure, staff type, shift and weekend/weekday hours.

The research team sought out two major payroll processing companies and one company that collected time and labor data to interface with payroll systems for discussions regarding the various components of payroll reports and the processes involved in selecting and changing those reports. These companies provide payroll/labor data management services for over 6,000 facilities in 45 states. Although their approach varied slightly, generally each system offered facilities a standard report and options for specialized or custom reports. Standard reports generally included summaries by department with varying degrees of additional information available. Components of the reports are selected by the facility at the time the service is initiated. Customized reports or modification of standard reports were also available. One payroll processing company reported that a facility may select up to 100 different earning/department codes for different types of information (e.g., shift, weekend, vacation, sick, unit). Additional codes may be accessed through the company's mainframe system. Through one company, facilities may opt to purchase an additional feature which allows them to query/sort fields so as to generate reports from their own computer system; however, they may sort only on the variables that were initially identified during the set-up of the system. To change the information contained in the reports, the facility must make a request to the payroll processing company. Revisions in reports reportedly take from one to six weeks depending on how the initial system was set up. Facilities are not able to change the format of their payroll reports themselves.

Facility Staff Turnover and Stability Measures

Stakeholder groups had commented on the lack of standardized measures of nursing facility staff turnover in most states. They also suggested that such measures should be available in some publicly- accessible location. In response to this concern, two measures of staff

retention were included in the staffing data collection tool. A measure of staff turnover by nurse staff type (RNs, LPN/LVNs, Medication Aides/Technicians, CNAs, Other nursing staff) was defined as the number of employees in each category whose employment ended during the designated time period as a proportion of the total number of nursing employees on the last day of the time period or the average number of nursing employees employed during the designated time period. The nursing staff stability calculation was also differentiated by nurse staff type and was based on the number of nursing employees with one or more years of service on the last day of the time period as a proportion of the total number of nursing employees. Tenure in key positions (facility administrator, director of nursing and MDS Coordinator) was also included as a separate measure within this section. The designated time period was identified as the 90 days prior to the facility's last state survey or the most recent full quarter for which data were available.

A measure of volunteer hours was also included within this section, as it was recognized that there are a number of facilities that utilize volunteers to augment staff. Volunteer hours were recorded for the same time period as the turnover and stability information in this section of the data collection tool and for the same period as the payroll hours in the Nursing Services Staffing section of the tool.

Initial site visits revealed that turnover information had to be manually computed from several source documents and was not readily available, at least for a 90-day period, from payroll journals. When facilities were able to provide turnover information, data collectors often found errors in calculations.

Staff Hourly Wage Rates

Obtaining hourly wage rates by nurse staff type required the differentiation between hours worked and hours paid. The computation of average wages was calculated using gross wages divided by hours worked. Gross wages paid by staff type was readily available at the eight study facilities. To identify the hours worked required that the researcher locate the total hours by staff type and manually remove the various additional non-worked hours (e.g., vacation, sick, personal, bonus, differential). Using payroll ledger codes, these categories of hours were identified and then subtracted from the total number of hours. Average hourly rates were calculated on staff involved only in direct care and excluded those in administrative positions.

Facility Nurse Staffing Hours

This section examined the feasibility of using payroll records to determine the nurse staffing hours by staff type and variable(s) of interest for employees of the facility for the designated payroll period. Census information for the same period was also recorded here. This section was formatted such that each digit and/or decimal point is recorded in a separate box. Census by day is recorded for the 14 days of the pay period. Average census was computed by the data collector.

The feasibility of determining total nurse hours by department and licensure type as well as by the other variables of interest (i.e., shift, unit, weekday/weekend, Medicare, non-Medicare, direct care/administrative care) from the payroll records was tested during the development phase. The following table summarizes the availability of the staffing variables found during pre-testing:

Table 9.1
Staffing Variable Availability in Payroll Records and Contract Agency Invoices

Staffing Variable	Availability in Payroll Record	Availability in Contract Agency Invoices
Department	Yes	Yes
Licensure	Yes	Yes
Shift	Varied - Available if shift differentials used	Yes
Unit	Varied	No
Day of the week	Varied - Available if weekend differentials used	Yes
Direct care/Administrative	No - Salaried positions identified, but exact hours not available	No
Medicare/Non-Medicare	No	No

Source: Facility record reviews in Massachusetts and Ohio.

Staffing totals by department and staff type was available at each of the eight facilities visited. Staffing by shift was identifiable in some facilities, generally by the use of shift differentials. Facilities that provide extra money for 'off' shifts (i.e., evening and night shifts) as an incentive to secure staff to work the less desirable shifts will have postings in their payroll journals recording this information. In facilities that pay extra for off shifts, but incorporate this into their hourly rates, this information will not be apparent.

The identification of staffing hours by unit and hours worked caring for Medicare beneficiaries vs. non-Medicare beneficiaries was believed to be closely related. Facilities may designate distinct Medicare units, declaring all the beds in that unit as Medicare certified, and restrict Medicare beneficiaries to those beds only. Alternatively, facilities may choose to certify all the beds as dually Medicare and Medicaid certified. If facilities choose to identify a distinct Medicare unit, it seemed reasonable that they would track staffing by unit in order to identify the costs associated with that unit. Preliminary site visits revealed that only one facility could identify staffing by unit. One other facility tracked the staffing hours provided for Medicare residents. Facility staff explained that the tracking of Medicare distinct part unit time and hours had been suspended upon the introduction of Medicare prospective payment.

Information on staffing on weekdays and weekends also varied in availability. Preliminary visits showed a mixture of reporting schemes for this item. Some facilities provide a weekend bonus, similar to shift differentials. If so, this information would be recorded in the payroll journal. Other facilities recorded this information for only a segment of their employees, e.g., only for hourly, non-exempt employees.

The distinction between direct care and administrative hours proved to be not a clear one. None of the facilities visited during the instrument development phase could identify staff hours as either administrative or direct care hours. They could, however, identify a number of nursing administration positions and could also identify those positions or individuals who were paid a salary as opposed to an hourly rate. In the majority of cases, those nurses who were considered administrative were paid a salary. During the pre-testing phase, interviews with facility staff indicated that there were a number of positions that were considered administrative and paid on a salary basis fairly consistently and there were a number of other positions that varied as to their status as administrative and/or salaried positions. In the facilities visited during the pre-testing phase, the director of nursing, the assistant director of nursing, and the MDS coordinator were generally seen as administrative and were paid a salary. Shift supervisors and unit managers who were providing supervision to the direct care staff varied by facility as to the status and payment of these positions. Positions that indicated responsibility for staff education, infection control or quality assurance also varied by facility as to status and payment type. Based on interviews with facility staff and examination of payroll records, the decision was made to record the number of nursing employees in salaried positions and to estimate the number of hours worked by these individuals during the payroll period. Salaried positions were believed to be a reasonable proxy for administrative positions and were readily available from payroll records.

For each of the staffing variables noted to be inconsistently reported among facilities in payroll records, alternative information sources were explored. Interviews with facility staff revealed that the information sought on staffing hours by unit, shift and day of the week could be obtained by examining other staffing records, (e.g., work schedules, daily staffing sheets and/or individual employee time cards or records). Research team staff, in an effort to fully explore the possibility of obtaining these variables from any available source, examined these other documents. Unfortunately, in the case of schedules and daily staffing sheets, the records were often found to be hand written and not updated or revised to reflect the final staff complement on any of the days/shifts of interest. Manually sorting through employee time cards to identify shift and day of the week worked would be burdensome for facility staff and an unrealistic task for an auditor.

Staffing schedules are written and posted to communicate to staff when to report for work. They do not 1) reflect the hours actually worked, particularly when a staff member stayed late or left early; 2) reflect updated information that shows which staff members did not report for particular shifts and which staff members took their place; and 3) always list RNs separately from LPNs. If a staff member from one unit is 'floated' to a short-staffed unit, that information is not regularly recorded. If it is recorded, it is done by hand and often not

legible. If an administrative nurse supplemented regular staffing by performing direct care work, that information is also not consistently recorded. Facilities explained that staffing the facility was such an arduous task that the priority had to be to secure enough staff to provide care, while revising and updating the schedule took a lesser priority. Daily assignment or daily staffing sheets are completed to display all the staff working in the building in a 24-hour period, by unit and shift. These worksheets, used by supervisors to monitor staff attendance, are frequently modified during the course of a day to show how staff assigned to one area may be moved at some point in the shift to respond to a need in another area of the building. Research team staff examined daily assignment sheets and/or schedules and determined that to attempt to extract information from these documents would be a time-consuming and error-prone task.

When facility schedules and daily staffing sheets were examined and compared to payroll records at the department, licensure type and individual employee level, it was found that there was a high degree of discrepancy between the two sources. For the nursing department as a whole, hours recorded in the payroll journal were six percent higher than hours recorded on schedules for a seven-day period. At the licensure type level, hours paid according to payroll records were 11 percent higher for RNs, seven percent higher for LPNs and five percent higher for nursing assistants. On the individual employee level, 16 employee records (four RNs, four LPNs, four CNAs) were examined, with only one employee having worked exactly what was recorded on the schedule. Hours for the individual employees as recorded in the payroll journal varied from hours recorded on schedules by 0.5 hours to 3.25 hours over a seven-day period. Hence, interviews with facility staff and examination of the various alternative staffing documents further reinforced the decision of the project team to accept only payroll records and contract staffing agency invoices as accurate representations of facility staffing hours.

Contract Nursing Services Invoices

This section surveyed facilities as to the types of information available regarding their use of contract agency staff. Facilities were asked to indicate which of the staffing variables of interest (date and shift worked, licensure category, unit, day of the week and hours providing care for Medicare vs. non-Medicare recipients) were present on the agency invoices and — if not on the invoice — if this information was available from other facility source documents. Facilities interviewed and visited during the development phase who used contract agency staff indicated that invoices were received at variable intervals — weekly, biweekly and monthly, and contained varying types of information. Some agency invoices contained all the staffing information sought, while others contained only a total cost amount. This prompted research team members to contact several major contract staffing agencies to determine the range of types of information currently available and an estimate as to the level of effort required to obtain any additional staffing variables.

Two major contract staffing agencies, serving nursing facilities in six states, indicated that they were capable of providing information on contracted hours by shift, unit, and day of the

week. They were not able to differentiate between hours worked caring for Medicare residents from hours caring for non-Medicare residents. These agencies were also questioned regarding their ability to generate summary reports for facilities and both indicated that they could summarize contracted employee invoice data by the following variables:

- Pay period, month, quarter and year;
- Time increments shorter than pay period; and
- Department and unit.

The two agencies differed in their estimation of the level of effort required to modify or create new reports, with one agency indicating that was a relatively easy process and the other stating that this would be possible but difficult and would take approximately 30 - 60 days of lead time.

Contract Nursing Services Nurse Staffing Hours

The recording of contract agency hours by staffing variable was complicated by the fact that often facilities used multiple agencies and were therefore gathering the necessary information from several invoices which did not always cover the same time period or provide the same types of information. A worksheet was formatted to aid in this effort. It provided a place to record the staffing hours by variable for each agency so that they could then be totaled for the facility. During visits to facilities during the development phase, it was found that for those facilities using agency staff, most of the variables of interest were available, yet time-consuming to extract. The more agencies involved, the more lengthy the process. Licensure type, shift and total hours worked were readily available. The date of the service was recorded, but often required the use of a calendar to determine if this was a weekend or weekday. Unit worked and hours caring for Medicare vs. non-Medicare residents was not found on contract invoices.

9.3 Field Testing of the Nurse Staffing Data Collection Tool

Field testing of the draft staffing data collection tool (see Appendix F-1) had two goals: 1) to test the feasibility of collecting the staffing variables from the payroll records and contract agency invoices; and 2) to test an audit protocol. It was envisioned that the tool would be completed by facility staff and audited for accuracy by nurse research consultants who would compare the information recorded on the tool with the source documents utilized. The research team was aware from prior experience that it was highly likely that at least some of the variables of interest would not be available from the designated source documents due to the variability in payroll records and contract agency invoices. The research team was interested in the extent of variability in the source documents, and also in the availability of the desired staffing information from supplementary facility documents and records. It would be important to have an understanding of how these supplementary records were kept, their level of accuracy and/or any auditing process, and the level of effort required to change

current systems to include the desired staffing data. Preliminary information had been obtained during pre-testing, but the research team needed to expand this inquiry to multiple states with different types of facilities.

9.3.1 Facility Sample

States vary as to the types of staffing information they require nursing facilities to collect and report in Medicaid Cost Reports. States were identified for testing the data collection tool based on a geographic diversity and variety in the types of staffing data that facilities are required to maintain to satisfy state requirements. Four states were identified to meet these criteria — California, Maryland, Minnesota and Texas. California requires that only hours worked are reported. Minnesota requires that facilities report both productive staff hours and compensated hours. Texas requires that only hours paid are reported. Primary criteria for facility selection were geographic diversity and size. Facilities had to have at least 50 beds, be located in one of five cities or counties in each state (to minimize travel expenditures), and freestanding (as opposed to hospital-based). There are more than 1000 facilities each in California and Texas, 203 in Maryland and 313 in Minnesota that met the sample requirements for bed size and were freestanding.

The following table listed the cities and counties selected for each state:

Table 9.2
Sample Cities and Counties by State

State	County
California	San Francisco, San Mateo, Alameda, Contra Costa
Maryland	Baltimore City, Baltimore, Howard, Hartford, Anne Arundel
Minnesota	Hennepin, Olmstead, Dakota, Goodhue, Dodge
Texas	Bexar, Travis, Comal, Guadalupe, Caldwell, Blanco

Larger facilities and facilities that are affiliated with a chain were believed to be more likely to have data available in their payroll records than small and/or independent facilities. In the four selected states, the median number of beds is 99, and 65 percent of freestanding facilities are affiliated with a chain. The original sample was to include 25 facilities in each of the four states, for a total of 100 facilities. The facility sample was stratified based on the number of beds in the facility and chain affiliation as follows:

- 15 facilities with 100 or more beds in each state, 10 of these facilities chain-affiliated and 5 independent. (Overall, 71 percent of facilities with 100 or more beds are part of a chain.)

- 10 facilities with less than 100 beds, five of these independent and five affiliated with a chain. [Note that there is slight oversampling of small, independent facilities that comprise only 40 percent of facilities with less than 100 beds.]

Using these sampling rules, 15 chain-affiliated and 10 independent facilities were selected for study in each state.

9.3.2 Facility Recruitment

Prior to contacting facilities to enlist their voluntary participation in the testing of the nurse staffing data collection tool, national and state provider associations and state survey agencies in each of the selected states were contacted to 1) inform them of the project's activities and proposed data collection effort and 2) enlist their support and willingness to promote facility participation. Survey Solutions led the effort by personally contacting key responsible individuals and providing background information on the project. Letters were drafted from CMS, Abt Associates and Survey Solutions which explained the development of the nurse staffing data collection tool, the expected level of effort required of those facilities willing to participate in the study and assurances of confidentiality in all aspects of the data collection effort. The letters along with copies of the nurse staffing data collection tool and instructions for tool completion were faxed to those association and agency representatives.

Facilities from each state that qualified in terms of size, type, affiliation, and location were listed by category (independent non-profit, independent for-profit, chain non-profit, chain for-profit). Survey Solutions staff were responsible for contacting facilities to schedule visits. Staff were instructed to contact facilities using the following suggested distribution by state:

Table 9.3
Facility Sample by State and Type

State	Independent, Non-profit	Independent, For-profit	Chain, Non-profit	Chain, For-profit	Total
California	3	7	2	15	25
Maryland	5	5	2	13	25
Minnesota	7	3	10	5	25
Texas	3	7	2	15	25

If the facility contacted refused to participate, the recruiter was to move to the next facility within the same category on the list. The number of beds for each facility was also listed and recruiters were instructed to select a mix of large and small facilities. Facilities in each state sample list were initially contacted for administrators' names and fax numbers and then provided with copies of the CMS, Abt and Survey Solutions letters, copies of the tool and instructions for completion. Each facility was then contacted by phone to enlist their participation and to schedule a convenient time for the nurse consultant to visit.

9.3.3 Consultant Recruitment

Qualifications

The research team understood that it was possible that the nurse staffing data collection tool could become a component of the state survey with the task of auditing of the tool performed by state surveyors. Thus the consultants recruited to complete the audit were selected from candidates who had at least some knowledge of and experience with the state survey process. Additionally, they were expected to have the following qualifications: experience in long term care facility management; ability to work independently; attention to detail; initiative and ability to elicit facility staff cooperation. Survey Solutions selected candidates from their roster of nurse consultants who met these qualifications and were either living in or willing to travel to the sample states of California, Maryland, Minnesota, and Texas.

Training

Training was conducted by Survey Solutions' Beth Klitch and Kay Webb via a teleconference with four nurse consultants in a two-hour session on July 11, 2001. Abt, CMS and Cowles Research Group staff also participated, as members of the project team had agreed to accompany nurse consultants on initial facility visits to oversee the audit process. (See Appendix F-2 for agenda and training materials). Training materials consisted of the nurse staffing data collection tool, instructions for completion of the tool, instructions for collecting and submitting the audited tool and a provider questionnaire that was to be completed during the exit interview with facility staff. Goals and objectives of the project were explained, followed by a thorough review of each section of the form.

9.3.4 Field Testing

Between July 31 and August 10, 2001 the nurse staffing data collection tool was tested in 38 facilities in four states — California, Maryland, Minnesota and Texas. Although the research team had planned and expected to test the tool at 80 to 100 facilities, the decision was made to suspend testing after the first 38 facilities were completed for several reasons. The primary reason was that initial field testing demonstrated consistency in results that did not justify further testing of the tool without revisions to the tool's content, format and instructions. It was believed that little or no additional information would be gained relative to the cost in time and travel expenses. What follows is a description of the process employed during the field testing.

Sampled facilities were contacted by phone for facsimile numbers and administrators' names. When this information was obtained, a packet of information containing the tool, instructions and letters of support from Abt, CMS and Survey Solutions was sent to the sampled facilities. Survey Solutions then contacted the facilities to engage their participation in the study and arrange for a convenient time for the nurse consultant to visit. Facilities were asked to complete all sections of the tool prior to the consultant's visit, but were advised that if unable to complete certain sections because of missing information or unclear directions,

they were to mark those areas for discussion with the nurse consultant when she arrived at the facility.

Table 9.4
Facility Sample by State, Size and Type

State	Independent For-Profit		Independent Not-for-Profit		Chain For-Profit		Chain Not-for-Profit		Total	
	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small
California (7)	1	1	0	0	0	3	0	2	1	6
Maryland (8)	0	1	0	1	4	0	1	1	5	3
Minnesota (9)	2	0	1	1	0	0	3	2	6	3
Texas (14)	1	2	1	2	5	2	1	0	8	6
Total	8		6		14		10		20	18

Size: Large facilities had $100 beds; Small facilities <100 beds.

Facility visits were structured to include an entrance conference with the administrator and/or the business office manager. The project's general goals were explained as well as the data collection process that the nurse consultant expected to use for the facility visit. The remainder of the visit generally took place with the facility's business office manager or with the person in charge of the payroll process. The nurse consultant reviewed each question within each section of the tool for missing information with the appropriate staff person. If the information was missing due to misinterpretation of the directions, further explanation was offered in order to obtain the information from facility staff. If the information was not available the item was left blank. The nurse consultant then requested the source documents and proceeded to attempt to verify the accuracy of each item by comparing the facility's response on the tool to the respective source document entry.

Facility visits varied in length with the shortest visit taking one hour and 30 minutes and the longest six hours. The average for all facilities, regardless of size or type, was three hours. Data on time to complete audits was not recorded for three facilities (one in Minnesota and two in Maryland). The length of time recorded for facility visits included time for the tool audit as well as entrance conferences and exit interviews. Audit times do not appear to vary significantly by type or size of facility. The average time to audit the Maryland facilities was slightly over two hours; for Minnesota it was two hours and 26 minutes and for Texas two hours and 45 minutes. California audits took longer, with the average slightly over five hours. Because the hours recorded do not distinguish between time spent in audit versus time spent in entrance and exit conferences, it is not possible to make any generalizations as to the level of effort involved in the various states' audits.

Table 9.5
Average Times to Complete Audit

State	Independent For-Profit		Independent Not-for-Profit		Chain For-Profit		Chain Not-for-Profit	
	Large	Small	Large	Small	Large	Small	Large	Small
California (7)	5 hrs.	6 hrs.	N/A	N/A	N/A	4.5 hrs.	N/A	5.6 hrs.
Maryland (8)	N/A	3	N/A	N/A	2 hrs.	N/A	N/A	2 hrs.
Minnesota (9)	1.5 hrs.	N/A	1.75 hrs.	N/A	N/A	N/A	2.8 hrs.	2.6 hrs.
Texas (14)	2.5 hrs.	3 hrs.	3 hrs.	2.8 hrs.	3 hrs.	2.6 hrs.	2 hrs.	N/A

Size: Large facilities had $100 beds; small facilities <100 beds.

9.3.5 Findings

The project goal was to describe facility payroll processes, determine if the staffing information of interest could be obtained from payroll records and contract agency invoices and test a mechanism for auditing the staffing data. The outcome of the field testing of the staffing data collection instrument is organized by data collection instrument section.

Facility Identification and Information
All 38 facilities were able to provide identifying information, census, certification type and numbers of beds. Facilities that provide multiple levels of care (e.g., assisted living and skilled nursing) and have federal provider numbers for each type of care occasionally requested guidance regarding the appropriate identification number to report on the form.

Census and Acuity Information
The ability of facilities to complete this section, which requested information on current census and resident RUGs, was varied. All facilities could provide their current daily census; however, the availability of the RUG census was very limited. Only four (two facilities in Maryland and two facilities in Minnesota) of the 38 sampled facilities could generate a RUG for each resident. Interestingly, Minnesota and Maryland are not RUG casemix states and would therefore not be expected to have this information readily available. It may be that the facilities that could generate this casemix information may be more knowledgeable and may have the ability to utilize their software systems in a way that others do not.

Facility Payroll Systems
Facilities were generally evenly split between those reporting that they processed their own payroll and those that use an outside service. Of the 34 facilities that were able to answer this question, 15 stated that they process their own payroll, while 19 use a payroll processing service. The 15 facilities that process their payroll were evenly spread across the four states with four in California, Minnesota and Texas and three in Maryland. They were also fairly evenly split between large (8) and small (7), chain (9) and independent (6), and for profit (6) and not-for-profit (9). It was generally believed that facilities that used an outside service would be more automated and have easier access to reports containing the staffing variables of interest. Facilities that process their own payroll indicated, however, that the majority of

them use automated systems and are able to generate the same staffing variables as those who use an outside service.

Interviews with payroll processing companies conducted during the development phase of the staffing tool led the research team to believe that there were a limited number of vendors in this area providing most of the needed services. Field visits to the 38 sampled facilities, indicated however, that there were 19 different payroll and labor and data processing companies being utilized by the sampled facilities. Only two of the vendors were providing services for three or more nursing facilities. The remaining 17 payroll processing companies had agreements with only one or two nursing facilities.

Hourly employee time is recorded via a timecard system and salaried employees use a sign-in sheet or honor system. Most facilities (24) pay employees every other week while a smaller number (7) pay on two determined dates, e.g., the 15th and 30th or 31st of the month. This presents an interesting situation as the facilities paying on two distinct dates of the month are apparently paying for 15 (or 16) days of work per pay period. For these facilities, the request to report nursing hours or expenditures for 14 days requires additional calculations. Facilities reported that the majority of systems could not hold more than two weeks or one pay period's worth of data. Only ten of the 30 facilities providing information could generate reports for the current pay period, previous quarter and year.

In this section facilities were asked to identify which of the variables of interest their payroll systems could supply. See Table 9.6 for a summary of their responses by state.

Table 9.6
Staffing Information Recorded by Payroll Processing Systems as Reported by Facilities by State

Staffing Information	California (n=7)		Maryland (n=8)		Minnesota (n=9)		Texas (n=14)	
	No. of facilities	%	No. of facilities	%	No. of facilities	%	No. of facilities	%
Staff Type	7	100	8	100	7	78	11	79
Shift	4	57	8	100	4	44	6	43
Weekday/Weekend	3	43	6	75	4	44	5	36
Medicare vs. Non-Medicare Hours	3	43	1	13	0	n/a	1	7
Direct Care vs. Administrative	5	71	4	50	2	22	7	50
Unit	2	29	3	38	0	n/a	2	14

n = the number of facilities visited. n/a = not applicable.

The majority (33 of 38) of sampled facilities could report nurse staffing by staff type (i.e., RN, LPN and CNA). According to the nurse consultants who visited facilities in Minnesota and Texas, where fewer facilities were able to report staffing by type, those facilities that couldn't report staffing by licensure were able to report a total for the nursing department.

The five facilities that could not report staffing by licensure were small (under 100 beds); two were non-profit facilities; and three were part of a chain.

Slightly more than half of the facilities indicated that their payroll systems reported staffing by shift, while the others stated that their systems could provide information on staffing by day of the week and direct care hours vs. administrative hours. Information on staffing hours providing care for Medicare vs. non-Medicare residents and staffing by unit were reported as available in only 13 and 18 percent of facilities respectively.

Facility Staff Turnover and Stability Measures

Facilities were asked to report dates of hire for administrators, directors of nursing and MDS coordinators. The majority of facilities (33) were able to provide information on all three positions; four facilities could provide information on only two of the positions and one facility could provide information on only one position. Two Maryland facilities were unable to report any information on turnover or staff stability. It is not clear, however, from the data whether the position for which data was unavailable was currently vacant or if the information was not obtained by the data collector. Facilities were often unsure if the total number of employees used for the turnover and stability calculations were total facility staff or total nursing staff. The verification of this information by the nurse consultants was frequently not accomplished through the payroll reports, but rather through a separate internal report maintained by the facilities.

Staff Hourly Wage Rates

This item required that gross wages paid and hours worked be recorded for RNs, LPNs, CNAs, Nursing Assistants in training and Medication Aides/Technicians so that average hourly rates could be derived. This item caused considerable confusion for facility staff for several reasons. First, facility staff questioned that the process of using gross wages and hours worked in the same calculation was correct. Secondly, they were uncertain if hours and wages paid for salaried positions were to be included in this area. The instructions did state *not* to include hours for the director of nursing, assistant director of nursing or MDS coordinator; however, in facilities where those positions are not salaried, or where there are additional nursing staff who provide direct care or supervision who are salaried, the confusion is justified.

Another factor leading to confusion and additional calculations related to the facility practice of modifying payroll reports to reflect desired staffing levels by discipline. In the process, however, staff hours were often reported in unexpected categories, which became apparent as the nurse consultant conducted the audit of the instrument. One facility that utilized nursing assistants as medication aides reported the hours spent as medication aides in the LPN payroll category so as not to overstate the nursing assistant hours. These aides often divided their time between working as nursing assistants and as medication aides. The system of removing their medication aide hours from the nursing assistant category was a manual one, which the nurse consultant discovered was not always done in a consistent manner. The employee was paid for the correct number of hours and because their hourly rate stayed the

same regardless of the work they were doing; perhaps this is the reason that these hours were not noted or corrected in the report.

Verification of staff hours by project nurse consultants proved to be quite tedious, as the total number of hours in payroll records by discipline is a grand total of hours worked — plus all other hours paid for vacation, sick time, personal time, etc. To identify only hours worked required that the nurse consultant identify the ledger codes pertaining to unworked hours and manually subtract those hours from the grand total.

Facility Nurse Staffing Hours

This section of the data collection tool requires that the user record the total number of hours worked during the pay period for RNs, LPNs and CNAs. If information on the breakdown of hours by shift, day of the week and hours caring for Medicare residents was available, this was to be recorded also. This section proved to be problematic for several reasons. The previous section, which also required the recording of total hours, included categories for medication aides and nursing assistants in training, while this section did not. Furthermore, the directions did not specify how hours for these two employee groups were to be accounted for. Half of the facilities reporting information on the total number of hours by nursing discipline did not report the same (or even close) totals in this section as they did in the previous section. Discrepancies appeared to be related to 1) the breakdown of nursing assistants into those certified, those in training and those functioning as medication aides, and 2) the problem of calculating hours paid for staff in salaried and non-salaried positions.

Facilities that provide multiple levels of care, have employees function in multiple roles, share staff with sister facilities, and those facilities that utilize wage pass through systems all posed situations not anticipated in the instrument development process. It became clear as the data collection phase progressed that these situations would necessitate modifications to the form and revisions to the instructions.

Contract Nursing Services Invoices

Slightly less than half of the sampled facilities reported using contract nursing services. Of the 18 facilities that reportedly used contract staffing, 15 provided information on contract invoices. All 15 reported that contract invoices could provide information on the staff type (RN, LPN or CNA), date and shift worked. Day of the week worked was reported as available on invoices at 14 facilities, while unit worked was available at only 5 facilities. Hours caring for Medicare residents was reportedly not recorded on any contract invoices.

Contract Nursing Services Nurse Staffing Hours

This section required that facilities record, for each contract agency used in the designated pay period, the total number of hours for each nursing discipline. As information on the breakdown of hours was available, this was to be recorded as well. Facilities and consultants reported this as the most time- consuming task. Worksheets were included in the staffing data tool to assist in the process of identifying the hours within the pay period and then recording the discipline, day of the week, shift, and unit as available. Facilities noted that the

fields to record the information on the worksheet were too small and didn't allow enough space to record partial hours.

Exit Interviews and Consultant Nurse Debriefing

Facility staff were asked to evaluate the staffing data collection tool in terms of the availability of required documents, the length of time needed and the level of difficulty presented for its completion. Exit interviews were conducted in 25 facilities with the facility staff that had worked on completing the form (see Appendix F-3 for sample exit interview form). Each section of the tool is ranked using a scale of one to five with one representing the least level of effort or time and five indicating the highest level. Length of time is designated in 15-minute intervals, as follows:

1 = less than 15 minutes to complete;
2 = 16 - 30 minutes;
3 = 31 - 45 minutes;
4 = 46 - 60 minutes; and
5 = greater than 60 minutes.

The exit interview also includes sections to record items that the interviewee would recommend adding or deleting and general comments.

Rankings for the Staff Hourly Wage Rates, Facility Nurse Staffing Hours and Contract Nursing Services nurse staffing hours sections were reviewed for the 25 facilities that participated in exit interviews. Although there were some facilities that indicated that sections of the form were difficult and time-consuming to complete, the majority of facilities ranked the above sections as very easy or easy and taking less than 30 minutes to complete. The Facility Nurse Staffing Hours section was evenly split between facilities that ranked it as taking less than 30 minutes and those ranking it as taking 45 minutes or more. More than two-thirds of the facilities, however, ranked the level of difficulty associated with this section as easy or very easy. This illustrates and supports facility comments that the form "wasn't hard but it was time- consuming."

Other facility comments related to requests for improvement in form directions in order to clarify those situations involving multi-level facilities, borrowed staff, wage pass through systems, staff performing in multiple roles, salaried vs. non-salaried staff hours, 15-day pay periods, direct care hours vs. non-direct care hours and productive vs. non-productive hours.

Nurse consultants were contacted following the completion of the data collection effort for general comments on facility visits. In general, the nurses noted that facilities often did not appear to be familiar with the capabilities of their software systems, particularly in terms of knowing which types of staffing information were available. Facilities seemed to overestimate the capabilities of their systems as often as they underestimated them. The nurses also attributed some of the difficulties to the unique staffing situations that facility staff reported in their exit interviews.

Consultant nurses pointed out that a significant number (20 percent) of the facilities had not been able to begin completing the form prior to their visit. Approximately 40 percent were able to complete the form entirely without the consultant's assistance and the remaining 40 percent were able to start it, but left sections incomplete either because of confusion around the directions or simply running out of time. In those facilities where the nurse consultants needed to assist in completing the form, the nurses recorded the information, at least for one or more sections of the tool, directly from source documents and thus were not able to perform the audit portion of the task. Even when facilities had completed all sections, it was clear that although some staffing variables were present in the payroll records, a significant amount of information had been derived from a variety of other facility records. These other internal records were not designated source documents and their accuracy could not be verified.

9.3.6 Conclusions and Recommendations

The research team was able to meet the project goal of examining and discussing with facility staff payroll processing systems, payroll records and contract nursing services invoices. Through the examination of these records and interviews with facility staff, certain conclusions as to the feasibility of extracting staffing information from payroll records and contract invoices were drawn. The third goal, that of testing an audit protocol for the staffing data collection tool, was unfortunately not met in this effort. The remainder of this section highlights the conclusions and recommendations of the project team regarding future collection of detailed nursing facility staffing information. The limitations of this effort are also noted.

Based on on-site review, it appears that there is a great deal of variability in payroll records. Despite this variability, there was some commonality to reporting practices detected which can provide information on the level of detail and accuracy of staffing information available in nursing facilities records. In summary, this data collection effort found that:

- Total nurse staffing hours by licensure type per pay period is currently available at most facilities in payroll and contract agency invoice records. In addition, this information is verifiable with mixed levels of effort;

- Other staffing variables (shift, unit, day of the week, and direct care vs. administrative care) are available in facility internal records but not feasible to verify;

- Technology for creating and modifying payroll and contract agency invoices is available and could be used to make information on shift and weekday vs. weekend hours available;

- The data elements containing information on shift and day of the week reside in most current payroll and invoice processing systems but currently are not easily extracted.

Within a reasonably short timeframe (one to six weeks) modifications to the systems to facilitate these report changes could be accomplished;

- Information on hours by unit is available, but is dependent on staff to manually update; hence, the accuracy is questionable; and

- Hours caring for Medicare vs. non-Medicare residents does not appear to be tracked by payroll systems or facility internal records for the majority of facilities studied.

Most of the project team's recommendations center on modifying the staffing data collection tool to limit the data collected to those variables that currently appear to be readily available and feasible to verify. Other modifications involve eliminating duplicative or unnecessary data fields and improving tool instructions. A revised staffing data collection tool is included (Appendix F-4) and reflects the following modifications:

- The *Resident RUGs* section is eliminated, as this information was not available for every resident on the census in the great majority of the sample facilities;

- The *Facility Payroll System* and *Process for Recording Temporary Agency Staff Hours* sections have been removed, as these sections were utilized during the project's investigative process and were for research purposes only.

- Staffing information on unit, shift, day of the week, direct care vs. administrative hours and hours caring for Medicare vs. non-Medicare residents was not consistently available nor verifiable and has therefore been removed;

- The *Nursing Service Staffing* section is eliminated. The breakdown of hours into the above-mentioned variables was not available and hours worked is recorded in the *Average Wage* section. Removal of the Nursing Service Staffing section eliminates duplicative reporting and condenses the data collection form;

- The types of nurse staffing (i.e., RNs, LPNs, CNAs, Medication Aides/Techs and CNAs in Training) utilized is revised to be consistent across all sections of the form;

- An item to allow facilities to record any nursing staff borrowed from other facilities was added;

- Calculation fields have been eliminated as unnecessary. Any calculations can be done at the data reception point; and

- Each data field in the form has been labeled and the directions made specific to each item. Definitions have been improved to provide better guidance for the user.

These revisions to the staffing data collection tool reflect the information currently available in nursing facilities. Should more detailed staffing information be desired and/or mandated by CMS, on-site facility reviews and interviews with payroll processing companies and contract agencies demonstrate that it could be made available through modification to existing systems. Future work should focus on selecting an optimum level of staffing detail, and identifying and providing guidance for any necessary system changes. The form should also be improved so that it accommodates those unique staffing situations identified during the field testing (e.g., wage pass-through systems, multi-level facilities, employees performing in multiple roles, and 15-day pay periods), while preserving an acceptable level of user-friendliness and accuracy.

The research team acknowledges that, for the facilities that so graciously agreed to participate in the testing of the nurse staffing data collection tool, the task of completing the tool as it was presented to them was formidable. The tool was lengthy and requested information on a maximum idealistic number of variables. Despite the pre-testing that was done, researchers were not prepared for the degree of variability seen in both payroll and invoice processing systems and facility staffing situations. Even for the variables noted to be most readily available — that of total staffing hours by licensure type — the process of removing unproductive hours to determine the hours worked was a tedious process. The verification process was far from what had been envisioned (i.e., simply comparing a number in the payroll record or invoice to a number reported by the facility on the tool). The research team's original thoughts that verification could be incorporated into the survey process appear unrealistic based on the current state of facility records. Electronic submission of a limited set of staffing variables would perhaps be a more feasible way to track and monitor facility staffing information.